

REMARKS

This paper responds to the Office Action mailed on July 26, 2006.

Claims 1, 6, 7, 8, 9, 14, 15, 16, and 17 are amended, no claims are canceled, and no claims are added; as a result, claims 1, 4-9, 13-17, 21-43 are now pending in this application.

Applicant herein amends claims to clarify the presently presented invention and not made in response to any rejection. Applicant reserves the right to file further applications directed to subject matter supported by the present specification.

Interview Summary

Applicant thanks Examiner David L Sorkin for the courtesy of an in-person interview on 18 October 2006 with Applicant's representative Timothy B. Clise. The pending claims and applied references were discussed. Agreement was not reached.

§103 Rejection of the Claims

Claims 1, 4-9, 13-17 and 21-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Schellenger (US 2,002,481) in view of Miller et al. (US 2,590,442). Since a *prima facie* case of obviousness has not been established, the Applicant respectfully traverse this rejection.

Claim 1 now recites, in part, “a first paint circulation line” and “a second paint circulation line including a second coupling for connecting a second paint output nozzle assembly thereto, the second paint circulation line being positioned downstream of the paint supply channel at a second supply node of the number of supply nodes, the second paint circulation line being positioned upstream of the paint return channel at a second return node of the number of return nodes, the second paint circulation line further comprising a second flow induced pressure generating portion including at least one second length of coiled tubing for developing a second differential pressure in the second paint circulation line, the second differential pressure being proportional to the magnitude of paint flow therein, *the second length of coiled tubing being different from the first length of coiled tubing and being shaped to generate sufficient differential pressure to provide an operative second pressure differential at the second paint output nozzle assembly* (italics added).” Applicant respectfully submits that

Schellenger and Miller, either alone or in combination, do not teach or suggest these elements. Specifically, applicant is unable to find in Schellenger or Miller a first length of coiled tubing and a second length of coiled tubing that is different than the first length of coiled tubing as recited in claim 1.

Moreover, claim 1 recites “a first differential pressure” associated with first length of coiled tubing of the first paint circulation line and “a second differential pressure” associated with second length of coiled tubing of the second paint circulation line. These structural features are not found in Schellenger or Miller.

The Office Action admits that Schellenger does not disclose coiled tubing. Accordingly, Schellenger also does not teach first and second lengths of coiled tubing. The Office Action relies on Miller as a teaching for coiled tubing. Applicant does not admit that Miller and Schellenger are combinable under 35 USC Sec. 103. However, if Schellenger was modified to include the heating coil 18 of Miller, the combination does not teach all of the features of claim 1. That is, Applicant can not find where Miller teaches or even suggests, first and second lengths of coiled tubing with “one or more first lengths of coiled tubing for developing a first differential pressure in the first paint circulation line, the first differential pressure being proportional to the magnitude of paint flow therein, first length of coiled tubing being shaped to generate sufficient differential pressure to provide an operative first pressure differential at the first paint output nozzle assembly, and . . . the second paint circulation line further comprising a second flow induced pressure generating portion including at least one second length of coiled tubing for developing a second differential pressure in the second paint circulation line, the second differential pressure being proportional to the magnitude of paint flow therein, the second length of coiled tubing being different from the first length of coiled tubing and being shaped to generate sufficient differential pressure to provide an operative second pressure differential at the second paint output nozzle assembly.”

Applicant further asserts that there is not reasonable expectation of success in combining Schellenger with Miller. First, Miller does not teach how its heating coil 18 would provide a differential pressure. Neither Schellenger nor Miller teach or even suggest a coil providing a differential pressure as Schellenger and Miller each have valves (e.g., Schellenger 35, 36; Miller 56, 57) to control pressure. Second, Miller does not teach or even suggest two different

structures for producing a first differential pressure and a second differential pressure as recited in claim 1.

Still further Schellenger teaches away from the invention defined in claim 1. Schellenger states that the constant circulation of the liquid through the system under constant pressure, provides a very effective method of supplying a uniform mixture of the liquid to the spray guns (col. 5, lines 46-50, underlining added). Claim 1 recites, in part, “the second length of coiled tubing being different from the first length of coiled tubing and being shaped to generate sufficient differential pressure to provide an operative second pressure differential at the second paint output nozzle assembly.” Accordingly, there is no reasonable expectation of success in combining Schellenger with Miller. Applicant respectfully request withdrawal of the rejection and allowance of claim 1.

The Office Action refused to give patentable weight to language that interrelates structural features of claim 1. The specific claim language not given patentable weight in the prior Office Action has been amended. Applicant respectfully reminds the examiner that functional language is specifically authorized by *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971); *In re Caldwell*, 138 USPQ 243 (CCPA 1963); *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 3 USPQ2d 1766 (Fed. Cir. 1987 (“so that” functional clause of claim renders reference non-anticipating); MPEP § 2173.05(g). See also, *In re Land*, 368 F.2d 866, 151 USPQ 621 (C.C.P.A. 1966). MPEP § 2173.05(g) states:

A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.” Examples of acceptable limitations referenced in this MPEP section include “incapable of forming a dye with said oxidizing developing agent” because it sets definite boundaries on the patent protection sought, and “members adapted to be positioned” serves to precisely define present structural attributes of interrelated component parts.

Accordingly, applicant requests that all language of claim 1 be examined and given patentable weight.

The Office Action cites *Ex Parte Masham* as a basis for not giving patentable weight to the features of the structural limitations in claim 1. Applicant respectfully submits that *Ex Parte Masham* is not applicable to the present application. MPEP 2114 states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was "for mixing flowing developer material" and the body of the claim recited "means for mixing ..., said mixing means being stationary and completely submerged in the developer material". The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

Claim 1 is not similar to the claim at issue in *Ex Parte Masham*. Claim 1 recites structural features and properties of the structural features, not a means for using. For example, the second length of coiled tubing being different from the first length of coiled tubing and being shaped to generate sufficient differential pressure to provide an operative second pressure differential at the second paint output nozzle assembly is structural. That is, the first and second lengths of coiled tubing are different. Moreover, the second length is shaped to generate sufficient differential pressure to provide an operative second pressure differential at the second paint output nozzle assembly, which are structural features.

Again, applicant requests that all of the structural features including the relationship between elements and properties of the elements be given patentable weight.

For at least the reasons stated above, applicant requests that the rejection of claim 1 be withdrawn and claim 1 be allowed. Claims 4-5, 13, 21-26 depend on claim 1 and are allowable for at least the reasons as stated above.

Claim 21 recites "the lengths of coiled tubing are arranged in series or in parallel in a corresponding paint circulation line." Applicant can not find these features in Schellenger or Miller. As discussed above, Schellenger does not have coils. Miller only shows a single coil 18, see for example, Figure 1 of Miller. Accordingly, all of the features of claim 21 are not found in Schellenger and Miller, either alone or in combination. Allowance of claim 21 is requested.

Claim 23 recites "the length of coiled tubing has one or more predetermined coil parameters, including inner tube diameter, coil diameter, coil length, and coil pitch, one or

more of which being selected according to a predetermined flow induced differential pressure.” Applicant can not find these features in Schellenger or Miller. As discussed above, Schellenger does not have coils. Miller does not teach any parameters of its coil 18. Accordingly, all of the features of claim 23 are not found in Schellenger and Miller, either alone or in combination. Allowance of claim 23 is requested.

Claim 24 recites “one or more than one length of coiled tubing has an inner tube diameter ranging from about 1/8 inch to about 1/2 inch, a wall thickness ranging from about 0.020 inch to about 0.065 inch, a coil diameter ranging from about 1/2 inch to about 12 inches and a coil pitch ranging from about 1/8 inch to about 1 inch.” Applicant can not find these features in Schellenger or Miller. As discussed above, Schellenger does not have coils. Miller does not teach any parameters of its coil 18. Accordingly, all of the features of claim 24 are not found in Schellenger and Miller, either alone or in combination. Allowance of claim 24 is requested.

Claim 25 recites “each length of coiled tubing is formed from stainless steel materials.” Applicant can not find this feature in Schellenger or Miller. As discussed above, Schellenger does not have coils. Miller does not teach this feature. Accordingly, all of the features of claim 25 are not found in Schellenger and Miller, either alone or in combination. Allowance of claim 25 is requested.

Claim 26 recites “the length of coiled tubing has an inner tube diameter of ¼ inch, a length of about 20 inches, a wall thickness of 0.035 inch, a coil diameter of about 4 inches, a coil pitch of ½ inch, and an overall tube length of about 20 inches.” Applicant can not find these features in Schellenger or Miller. As discussed above, Schellenger does not have coils. Miller does not teach these features. Accordingly, all of the features of claim 26 are not found in Schellenger and Miller, either alone or in combination. Allowance of claim 26 is requested.

Claim 6 now recites, in part, “the first paint circulation line further comprising a flow induced pressure generating portion including at least one first length of coiled tubing for developing a first differential pressure in the first paint circulation line, the first differential pressure being proportional to the magnitude of paint flow therein, the first length of coiled tubing being shaped to generate sufficient differential pressure to provide a *first operative pressure differential* at the first paint output nozzle assembly, . . . the second paint circulation line further comprising a second flow induced pressure generating portion including at least one

second length of coiled tubing for developing a second differential pressure in the second paint circulation line, the second differential pressure being proportional to the magnitude of paint flow therein, *the second length of coiled tubing being different from the first length of coiled tubing and being shaped to generate sufficient differential pressure to provide an operative second pressure differential at the second paint output nozzle assembly* (italics added)."

Applicant respectfully submits that Schellenger and Miller, either alone or in combination, do not teach or suggest these elements. For example, Schellenger does not have first and second lengths of coiled tubing. Miller does not have first and second lengths of coiled tubing that include the structural features recited in claim 6.

Claim 7 recites, in part, "the first paint drop line including a first color change valve for connecting a first paint spray gun assembly thereto, each paint spray gun assembly being operative to spray a paint mixture received from the first paint drop line at a first operative flow rate, . . . the first paint drop line further comprising a first means for generating differential pressure according to a first operative flow rate, the first means for generating differential pressure including at least one first coiled tubing that is shaped to generate the first differential pressure and is substantially free of any component or dead spot of sufficient size to cause accumulation of settled solids from a paint mixture to cause pressure changes to a degree requiring that the system be recalibrated or to cause settled solids to be deposited on a painted surface to a degree requiring remedial repair thereof, and the second paint drop line including a second color change valve for connecting a second paint spray gun assembly thereto, the second paint spray gun assembly being operative to spray a paint mixture received from the second paint drop line at a second operative flow rate, . . . , the second paint drop line further comprising a second means for generating differential pressure according to a second operative flow rate, the second means for generating differential pressure including at least one second coiled tubing that is different from the first length of coiled tubing and shaped to generate the differential pressure and is substantially free of any component or dead spot of sufficient size to cause accumulation of settled solids from a paint mixture to cause pressure changes to a degree requiring that the system be recalibrated or to cause settled solids to be deposited on a painted surface to a degree requiring remedial repair thereof." Applicant can not find these features in the two applied references.

Claim 8 recites, in part, “the first paint drop line including a *first color change valve* for connecting a first paint spray gun assembly thereto, the first each paint spray gun assembly being operative to spray a paint mixture received from the first paint drop line at a *first operative flow rate*, . . . , the first paint drop line further comprising a *means for generating a first differential pressure* according to a first operative flow rate, the means for generating the first differential pressure including *at least one length of coiled tubing that is shaped to generate the first differential pressure*, the first paint drop line being *substantially free of any component or dead spot of sufficient size to cause accumulation of settled solids from a paint mixture to cause pressure changes to a degree requiring that the system be recalibrated or to cause settled solids to be deposited on a painted surface to a degree requiring remedial repair thereof*, wherein the first paint drop line is free of pressure regulators, pressure reducing valves, pressure gauge assemblies, tees, standpipes, isolation valves, isolation diaphragms, or a combination thereof, the second paint drop line including a *second color change valve* for connecting a second paint spray gun assembly thereto, the second paint spray gun assembly being operative to spray a paint mixture received from the second paint drop line at a *second operative flow rate*, . . . , the second paint drop line further comprising a *means for generating a second differential pressure* according to a *second operative flow rate*, the means for generating the second differential pressure including *at least one second length of coiled tubing that is different than the first length of coiled tubing and shaped to generate the second differential pressure* and is substantially free of any component or dead spot of sufficient size to cause accumulation of settled solids from a paint mixture to cause pressure changes to a degree requiring that the system be recalibrated or to cause settled solids to be deposited on a painted surface to a degree requiring remedial repair thereof (italics added). Applicant can not find these features in the two applied references.

Claim 14 recites, in part, “first control means located in the first drop line for controlling a first flow rate of paint through the first drop line, the first control means including one or more lengths of first coiled tubing that is shaped to adjust the first flow rate according to a first flow controlling pressure differential, and wherein the first flow controlling pressure differential is the pressure differential across the first drop line between the supply channel and the return channel, . . . a second control means located in the second drop line for controlling a second flow rate of paint through the second drop line, the second control means including one or more lengths of

second coiled tubing, wherein the second control means is operative to adjust the second flow rate according to a second flow controlling pressure differential, and wherein the second flow controlling pressure differential is the pressure differential across the second drop line between the supply channel and the return channel. Applicant can not find these features in the two applied references.

Claim 15 recites, in part, “first control means located in the first drop line for controlling a first paint flow rate, the first control means including one or more lengths of first coiled tubing shaped to adjust the first flow rate according to a first flow controlling pressure differential, and wherein the first flow controlling pressure differential is the pressure differential across the first drop line between the supply channel and the return channel, second control means located in the second drop line for controlling a second paint flow rate, the second control means including at least one second length of coiled tubing that is different than the first length of coiled tubing and shaped to adjust the second flow rate according to a second flow controlling pressure differential, and wherein the second flow controlling pressure differential is the pressure differential across the second drop line between the supply channel and the return channel.” Applicant can not find these features in the two applied references.

Claim 16, recites, in part, “wherein the first drop line includes first means for establishing a first flow controlling pressure differential between the supply channel and the return channel that is directly proportional to the first paint flow rate, the first means for establishing the first flow controlling pressure differential including one or lengths of first coiled tubing in the first drop line, wherein a change in the first flow controlling pressure differential in the first drop line causes a corresponding proportional change in the first paint flow rate through the first drop line, and wherein the second drop line includes second means for establishing a second flow controlling pressure differential between the supply channel and the return channel that is directly proportional to a second paint flow rate flowing through the second drop line, the second means including a second length of coiled tubing that is different than the first length of coiled tubing and is shaped to establish the second flow controlling pressure differential in the second drop line, wherein a change in the second flow controlling pressure differential in the second drop line causes a corresponding proportional change in the second paint flow rate through the second drop line.” Applicant can not find these features in the two applied references.

Claim 17 recites, in part, "the first drop line including a first coil to limit changes to a first drop line flow rate in the first drop line to within a proportional change in a first flow controlling pressure differential in the first drop line between the supply channel and the return channel, and the second drop line including a second coil, which is different than the first coil, to limit changes to the second drop line flow rate to within a proportional change in a second flow controlling pressure differential in the second drop line between the supply channel and the return channel. Applicant can not find these features in the two applied references.

For at least similar reasons as stated above with regard to claim 1, applicant submits that patentable weight must be given to the claim language of claims 6, 7, 8, 9, and 13-17.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 349-9587 to facilitate prosecution of this application. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,


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Date 26 Dec '06

By 
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